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EXAMINER
NGUYEN, HUNG D

ART UNIT	PAPER NUMBER
3742	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/576,453	SIECKMANN ET AL.
	Examiner	Art Unit
	HUNG NGUYEN	3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>22 October 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>25-50</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>25-50</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 April 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>4/20/2006</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____

DETAILED ACTION

1.   This office action is responsive to the amendment filed on 4/20/2006. As

directed by the amendment: claims 1-24 have been canceled and new claims 25-50

have been added. Thus, claims 25-50 are presently pending in this application.

Specification

2.   The disclosure is objected to because of the following informalities: The term

"claim 1" in line 2, Par. 1 and in line 2, Par. 6 of the Specification is objected because

the term "claim 1" is subject to change during prosecution.

        Appropriate correction is required.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claims 25, 26, 29, 45 and 47 are rejected under 35 U.S.C. 102(b) as being

anticipated by Schutze et al. (US Pat. 5,998,129) (cited by applicant).

5.   Regarding claim 25, Schutze et al. discloses a method for laser microdissection

comprising: capturing an electronic image of at least one image detail of a specimen

(Col. 7, Lines 4-7); processing the at least one image detail using image analysis so as

to automatically ascertain at least one object to be cut out (Col. 7, Line 8-13);

automatically defining a nominal cutting line around the at least one object to be cut out

(Col. 7, Line 13-15); and subsequently cutting out the at least one object in response to

a relative motion between a laser beam and the specimen (Col. 7, Lines 16-21).

6.   Regarding claim 26, Schutze et al. discloses a step of preparing the electronic

image for the processing using a contrasting method based on camera (Col. 6, Lines

41-46).

7.   Regarding claim 29, Schutze et al. discloses the electronic image is either a

grayscale image or a color image (Col. 7, Line 5-7).

8.   Regarding claim 45, Schutze et al. discloses a defined clearance distance in the

specimen so as to prevent a neighboring object from being sliced through (Col. 7, Lines

13-20).

9.   Regarding claim 47, Schutze et al. discloses superimposing, by an imaging

device, the nominal cutting line onto the electronic image so as to control results of the

cutting out (Col. 6, Lines 29-64).

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Schutze et al. (US Pat. 5,998,129) in view of Schachter et al. (XP-0002269476)

(cited by applicant).

12.   Regarding claim 27, Schutze et al. discloses substantially all features of the

claimed invention as set forth above except for the processing the image detail is

performed using a segmenting of the electronic image: defining a grayscale threshold

value on the basis of the electronic image; and converting, by making a comparison with

the grayscale value threshold, the electronic image to a binary image including only the

at least one object segmented. Schachter et al. discloses a processing the image detail

is performed using a segmenting of the electronic image: defining a grayscale threshold

value on the basis of the electronic image (Page 19; Left column, Par. 2) and

converting, by making a comparison with the grayscale value threshold (Page 19; Left

column, Par. 3), the electronic image to a binary image including only the at least one

object segmented (Page 24; Left column, Par. 2). It would have been obvious to one of

ordinary skill in the art at the time of the invention was made to utilize in Schutze et al.

to have the processing the image detail is performed using a segmenting of the

electronic image: defining a grayscale threshold value on the basis of the electronic

image; and converting, by making a comparison with the grayscale value threshold, the

electronic image to a binary image including only the at least one object segmented, as

taught by Schachter et al., for the purpose of segmenting an object in an image by gray

level threshold.

13.   Regarding claim 28, Schutze et al. discloses substantially all features of the claimed invention as set forth above except for the defining a grayscale threshold value is performed by manually setting the threshold value. Schachter et al. discloses a defining a grayscale threshold value is performed by manually setting the threshold value (Page 19, Right column, Par. 4 to Page 20, Left column, Par. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze et al. to have the defining a grayscale threshold value is performed by manually setting the threshold value, as taught by Schachter et al., for the purpose of mapping an object to the grayscale image.

14.   Claims 30-37 and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Schachter et al. (XP-0002269476) and further view of Mengel (DE 19636074) (cited by applicant).

15.   Regarding claim 30, the combined references disclose substantially all features of the claimed invention as set forth above except for the processing the image detail includes: defining specific classification features characterizing the at least one object so as to ascertain the at least one object; classifying the at least one object using image analysis by determining from the image actually existing object features of the at least one object segmented and comparing the existing object features to the defined specific classification features. Mengel discloses a processing the image detail includes: defining specific classification features characterizing the at least one object so as to ascertain the at least one object (Page 1, Par. 6; English translation); classifying the at least one object using image analysis by determining from the image actually existing

object features of the at least one object segmented and comparing the existing object features to the defined specific classification features (Page 1, Par. 10; English translation). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the processing the image detail includes: defining specific classification features characterizing the at least one object so as to ascertain the at least one object; classifying the at least one object using image analysis by determining from the image actually existing object features of the at least one object segmented and comparing the existing object features to the defined specific classification features, as taught by Mengel, for the purpose of classifying parts which can be examined on the basis captured images.

16.   Regarding claim 31, the combined references disclose substantially all features of the claimed invention as set forth above except for the comparing is performed so as to determine whether the actually existing object features conform with the defined specific classification features. Mengel discloses comparing is performed so as to determine whether the actually existing object features conform with the defined specific classification features (Page 2, Par. 1; English translation). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the comparing is performed so as to determine whether the actually existing object features conform with the defined specific classification features, as taught by Mengel, for the purpose of verifying the object with the database.

17.   Regarding claim 32, the combined references disclose substantially all features of the claimed invention as set forth above except for the defining specific classification

features includes defining, in each instance for different object types, individual feature data records including the specific classification features. Mengel discloses a defining specific classification features includes defining, in each instance for different object types, individual feature data records including the specific classification features (Page 2, Par. 14; English translation). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the defining specific classification features includes defining, in each instance for different object types, individual feature data records including the specific classification features, as taught by Mengel, for the purpose of updating the classification data base.

18.   Regarding claim 33, the combined references disclose substantially all features of the claimed invention as set forth above except for the defining specific classification features is performed automatically or manually in a learning process including inputting the classification features interactively or automatically by suitably marking the at least one object. Mengel discloses the defining specific classification features is performed automatically or manually in a learning process including inputting the classification features interactively or automatically by suitably marking the at least one object (Page 2, Par. 10; English translation). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the defining specific classification features is performed automatically or manually in a learning process including inputting the classification features interactively or automatically by suitably marking the at least one object, as taught Mengel, for the purpose of classifying an object to the specific classification in the data base.

19.   Regarding claim 34, Schutze et al. further discloses the marking is performed
using a mouse click (Col. 7, Line 10).

20.   Regarding claim 35, Schutze et al. further discloses the automatically defining
the nominal cutting line is performed so as to exclude unclassified objects (Col. 7, Lines
13-26).

21.   Regarding claim 36, the combined references disclose substantially all features
of the claimed invention as set forth above except for the defining specific classification
features includes defining a range of values for at least one of the specific classification
features. Mengel discloses defining specific classification features includes defining a
range of values for at least one of the specific classification features (Page 2; Par. 16-
18). It would have been obvious to one of ordinary skill in the art at the time of the
invention was made to utilize in the combined references to have the defining specific
classification features includes defining a range of values for at least one of the specific
classification features, as taught Mengel, for the purpose ensuring the classification
works uninfluenced by the actual range of values of the features.

22.   Regarding claim 37, the combined references disclose substantially all features
of the claimed invention as set forth above except for the excluding from the nominal
cutting line objects, identified by the comparing the existing object features to the
defined specific classification features, that border on an edge of the image detail or that
are only partially visible in the image detail. Mengel discloses an excluding from the
nominal cutting line objects, identified by the comparing the existing object features to
the defined specific classification features, that border on an edge of the image detail or

that are only partially visible in the image detail (Page 3, Par. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the excluding from the nominal cutting line objects, identified by the comparing the existing object features to the defined specific classification features, that border on an edge of the image detail or that are only partially visible in the image detail, as taught by Mengel, for the purpose of verifying an object to the specific classification data base.

23.   Regarding claims 48 and 49, the combined references disclose substantially all features of the claimed invention as set forth above except for the applying a mathematical transformation so as to automatically map the nominal cutting line onto a laser cutting line; and scaling the laser cutting line as a function of the image magnification. Mengel discloses applying a mathematical transformation so as to automatically map the nominal cutting line onto a laser cutting line; and scaling the laser cutting line as a function of the image magnification (Page 2, Par. 16). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to apply a mathematical transformation so as to automatically map the nominal cutting line onto a laser cutting line; and scaling the laser cutting line as a function of the image magnification, as taught by Mengel, for the purpose of mapping an object to the cutting outline.

24.   Claims 38, 46 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Bova (US Pub. 2002/0025511).

25.   Regarding claim 38 and 46, Schutze et al. discloses substantially all features of

the claimed invention as set forth above except for at least one object includes a

plurality of objects disposed in close proximity to one another, and further comprising

combining the plurality of objects into a cluster, and wherein the automatically defining a

nominal cutting line is performed so as to define a single shared nominal cutting line

surrounding the cluster. Bova discloses at least one object 37 (Fig. 3) includes a

plurality of objects 40, 41 (Fig. 3) disposed in close proximity to one another, and further

comprising combining the plurality of objects into a cluster (Refer to Fig. 3), and wherein

the automatically defining a nominal cutting line is performed so as to define a single

shared nominal cutting line surrounding the cluster (Par. 61-69). It would have been

obvious to one of ordinary skill in the art at the time of the invention was made to utilize

in Schutze et al. to have at least one object includes a plurality of objects disposed in

close proximity to one another, and further comprising combining the plurality of objects

into a cluster, and wherein the automatically defining a nominal cutting line is performed

so as to define a single shared nominal cutting line surrounding the cluster, as taught by

Bova, for the purpose of combining plurality object to one cluster and remove it one

cutting.

26.   Regarding claim 50, Schutze et al. discloses substantially all features of the

claimed invention as set forth above except for modifying the nominal cutting line so as

to compensate for imprecise repositioning of the microscope stage. Bova discloses

modifying the nominal cutting line so as to compensate for imprecise repositioning of

the microscope stage (Par. 77). It would have been obvious to one of ordinary skill in

the art at the time of the invention was made to utilize in Schutze et al. to modify the

nominal cutting line so as to compensate for imprecise repositioning of the microscope

stage, as taught by Bova, for the purpose of having precise cutting line.

27.   Claims 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Schutze et al. (US Pat. 5,998,129) in view of Ganser (US Pub. 2002/0048747).

28.   Regarding claim 39, Schutze et al. discloses substantially all features of the

claimed invention as set forth above except for applying a mathematical transformation

so as to automatically map the nominal cutting line onto a laser cutting line; and

converting the laser cutting line into the relative motion between the laser beam and the

specimen so as to provide a laser cut. Ganser discloses applying a mathematical

transformation so as to automatically map the nominal cutting line onto a laser cutting

line; and converting the laser cutting line into the relative motion between the laser

beam and the specimen so as to provide a laser cut (Par. 42-44). It would have been

obvious to one of ordinary skill in the art at the time of the invention was made to utilize

in Schutze et al. to applying a mathematical transformation so as to automatically map

the nominal cutting line onto a laser cutting line; and converting the laser cutting line into

the relative motion between the laser beam and the specimen so as to provide a laser

cut, as taught by Ganser, for the purpose of mapping the image to the cutting onto the

laser to perform a cut.

29.   Regarding claim 40, Schutze et al. discloses substantially all features of the

claimed invention as set forth above except for initiating, by a user or automatically, the

relative motion between the laser beam and the specimen. Ganser discloses an

initiating, by a user or automatically, the relative motion between the laser beam and the specimen (Par. 44). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze et al. to initiating, by a user or automatically, the relative motion between the laser beam and the specimen, as taught by Ganser, for the purpose of cutting out the specimen automatically by the computer.

30.   Regarding claim 41, Schutze et al. discloses substantially all features of the claimed invention as set forth above except for determining an outer contour of the at least one object using image analysis; and converting the outer contour into a numerical code specifying the automatically defined nominal cutting line. Ganser discloses determining an outer contour of the at least one object 24 (Fig. 2) using image analysis; and converting the outer contour into a numerical code specifying the automatically defined nominal cutting line 25 (Fig. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze et al. to determining an outer contour of the at least one object using image analysis; and converting the outer contour into a numerical code specifying the automatically defined nominal cutting line, as taught by Ganser, for the purpose of converting an image to the cutting line thereby the laser can perform the cut.

31.   Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129), Ganser (US Pub. 2002/0048747 and further view of Saund (US Pat. 6,377,710).

32.   Regarding claim 42, the combined references disclose substantially all features of the claimed invention as set forth above except the numerical code is a Freeman

code or a chain code. Saund discloses the numerical code is a chain code (Col. 4, Line 60 to Col. 5, Line 8). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in the combined references to have the numerical code is a chain code, as taught by Saund, for the purpose of using the chain code method for mapping the boundary contour on the perimeter of the object.

33.   Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze et al. (US Pat. 5,998,129) in view of Sakai et al. (US Pub. 2001/0053245).

34.   Regarding claim 43, Schutze et al. discloses substantially all features of the claimed invention as set forth above except for performing an automatic shading correction including: recording an empty image without a specimen; storing the empty image as a shading correction image; and applying an offset correction to the captured electronic image using the shading correction image. Sakai et al. discloses an automatic shading correction (Par. 39) including: recording an empty image without a specimen (par. 53); storing the empty image as a shading correction image; and applying an offset correction to the captured electronic image using the shading correction image (Par. 52). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Schutze et al. to performing an automatic shading correction including: recording an empty image without a specimen; storing the empty image as a shading correction image; and applying an offset correction to the captured electronic image using the shading correction image, as taught by Sakai et al., for the purpose of calibrating the images recording apparatus.

35.   Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schutze
et al. (US Pat. 5,998,129) in view of Schachter et al. (XP-0002269476) and further view
of Schuetze (WO 03036266).

36.   Regarding claim 44, the combined references disclose substantially all features
of the claimed invention as set forth above except for removing a specific unwanted
object of the at least one object from the binary image using image analysis
morphology, the unwanted object being not designated for microdissection. Schuetze
discloses removing a specific unwanted object of the at least one object from the binary
image using image analysis morphology, the unwanted object being not designated for
microdissection (Page 2, Par. 5-6; "The selection ... selection of the desired objects";
English translation). It would have been obvious to one of ordinary skill in the art at the
time of the invention was made to utilize in the combined references to remove a
specific unwanted object of the at least one object from the binary image using image
analysis morphology, the unwanted object being not designated for microdissection, as
taught by Schuetze, for the purpose of cutting out only the wanted object that have
mapping into the cutting line.

        Any inquiry concerning this communication or earlier communications from the
examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-
7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/
Examiner, Art Unit 3742
8/12/2009
/TU B HOANG/

Supervisory Patent Examiner, Art Unit 3742